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RATIONAL ADVICE

TO THE

MILITARY,

WHEN EXPOSED TO THE

INCLEMENCY

OF

HOT CLIMATES AND SEASONS.

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THIS ſmall eſſay is calculated for the uſe of all our countrymen conſtantly paſſing to the Eaſt and Weſt Indies, and becoming reſidents there, as well as for the preſent circumſtances of our armies.

But as at no period of our hiſtory, the merit, the importance, the valour, and the loyalty of our armies have ever been more diſtinguiſhed than they are at preſent; this ſmall tribute of the higheſt regard, is reſpectfully inſcribed to the gentlemen of the army, by

THE AUTHOR.

Beaufort Buildings,
28th Dec. 1780.

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ERRATA.

Page 18, l. 1, *read* bilious
21, l. 8, *after* recurrent *add a period*
l. 21, *read* obſervation of
29, l. penult. *dele comma after* parts, *and place it after* eſpecially
31, l. 2, *read* waſtes the
33, Note, l. penult. *for* digeſtion *read* dejection
34, l. 4, *read* activity
35, l. 8, *read* mill

INTRODUCTION.

THE real and extenſive importance of this ſubject did not ſtrike me when I firſt engaged in writing the following pages, as it does now. I meant no more than to compoſe a few ſuch private directions as I thought might prove uſeful to any individuals of my acquaintance, who might be called to ſervice in dangerous climates. When I conſidered the ſubject attentively, the importance of its end ſtruck me more and more ſenſibly; till at laſt I determined, if there was any reaſon and weight in my ſentiments, to give

them the beſt chance I had acceſs to of their being rendered as generally uſeful to my country as poſſible.

In the brief detail I have thought neceſſary to introduce of the origin and genius of the diſeaſes of hot climates, in order to account for the few rules which I thought moſt calculated to prevent them, I have been as plain and intelligible as poſſible, and therefore have ſaid nothing of *infection*, *marſh miaſmata*, &c.

I am well ſatisfied, whatever truth or reality there may be in theſe obſcure ſubjects, that every diſeaſe of climate almoſt, that we are acquainted with, may be referred to more certain, obvious, and intelligible cauſes; while there are no certain

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and rational means known, nor can be preſcribed for obviating and preventing the influence of unintelligible cauſes.

What added to the importance of my views, was the idea that ſtruck me of the poſſibility of rendering all the rules neceſſary for preſerving the the health of ſoldiers a part of the diſcipline and exerciſe, that they might eaſily be made obliged to obſerve by the intervention of their inferior and non-commiſſioned officers.

There is one thing that I do not remember to have obſerved inculcated at all; which, yet I am authoriſed by too frequent and unqueſtionable obſervation to affirm, is of more conſequence to be attended to than

any one thing in the whole doctrine of fevers.

The moſt malignant and fatal ſymptom, circumſtance (or I know not what to call it) of almoſt any fever, is its being late and too far advanced before it is diſcovered. I am fully perſuaded that this has proved the death of more perſons in fevers than any other malignity in them commonly known among us.

I have ſeen many die of fevers, but more recover out of them: indeed, I have met with very few, if any, inſtances of perſons recovering, who went about (not knowing what was the matter with themſelves) till the eighth or tenth day; when the fever had half, or more than half, run its courſe; while the poor patient, by

ſtruggling

ſtruggling againſt ſickneſs, and endeavouring to throw it off, was thereby rendering his recovery impoſſible.

This muſt more frequently be the caſe with ſoldiers, than any ſet of men, being obliged to do duty as long as they can ſtand upon their legs. With ſubmiſſion, I do ſuſpect this has carried off more men in that line of life than any other inherent malignity or putridity in the nature of fevers: *for all fevers* (I can ſcarcely even except true inflammatory ones) *become putrid before they can become mortal:* nor is there, in my opinion, *any fever really putrid until it is incurable.*

I am very ſenſible of the difficulty there muſt be in finding a remedy for this evil in an army doing the duties

duties of a campaign. I know there are ſome men who would take the advantage of any particular attention paid to their health; but I know alſo, that there are many generous manly ſpirits, among even the common ſoldiers (whom it is a thouſand pities to loſe) who would diſdain complaining as long as they thought themſelves capable of ſtanding to their duty.

In a ſickly ſeaſon it might be of conſequence for ſurgeons and their aſſiſtants to examine the ſtate of the mens healths, and what complaints were among them, every morning: by their ſkilfulneſs and diſcretion they might eaſily diſtinguiſh between real complaints and fictitious ones. The advantage would ſoon be found

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of an early attention to the firſt ſymptoms of epidemics among ſoldiers; as it would certainly be found more than half the cure to obviate the ſymptoms of diſeaſes in their earlieſt periods, before they had ſapped the powers of life in the conſtitution.

This I can ſay with confidence, that in ſeaſons when fevers were epidemic and very fatal to many; I have ſeen numberleſs fevers that I had the greateſt reaſon to ſuſpect would otherwiſe have been dangerous, if not fatal, prove very mild and benign, requiring neither bliſter nor any other ſuch powerful, tho' at beſt precarious medicines, merely by paying a requiſite attention to them in their very commencement and firſt ſtages.

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Upon the whole, if this maxim, which I think will not be controverted by any perſons of judgment in the profeſſion of Medicine, is admitted; *that*, namely, *many may be ſaved by prevention, for every one that is recovered by medicine, after a diſeaſe has rooted itſelf in the conſtitution*; then it muſt be an object of the greateſt importance, to chalk out ſome ſyſtem of regimen for preventing and obviating, as much as poſſible, thoſe diſeaſes that are known to be epidemic in armies, and prove ſo fatal to them, eſpecially in dangerous climates, to which their conſtitutions are not ſeaſoned.

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IT is an act of great ſervice to the community in general, as well as of much humanity to particular individuals, to be in any degree inſtrumental in preſerving the lives and the health of ſoldiers, ſo often neceſſarily expoſed to the baneful viciſſitudes of ſeaſons and inclemency of climates, in the cauſe of their country.

The diſeaſes that prove moſt fatal to ſoldiers in hot climates and ſeaſons, cannot be prevented unleſs the inductive cauſes of them are known.

In ſuch obſcure and intricate ſubjects as that of the origin and remote cauſes of diſeaſes, effects and cauſes are too often confounded, inverted in their order and influence, and miſtaken for each other.

Bile being a leading ſymptom in all the *endemics* and *epidemics* of hot countries and ſeaſons, we are apt to ſtop ſhort here, without making any further enquiry, why ſuch climates and ſeaſons ſhould ſo uniformly and univerſally generate that malignant ſymptom? Perhaps if that could be diſcovered and aſcertained, the whole ſeries of diſeaſes, that ſeem to have any connexion with a vitiated ſtate of the bile, might in a great meaſure be obviated and prevented.

It is not the heat nor cold of a climate alone that renders it unhealthful and pernicious; though by the incautiouſneſs and indiſcretion of individuals in the miſmanagement of themſelves, accidental diſeaſes may be generated either in hot or in cold regions. But the climates that prove unhealthful are ſuch as are either hot and moiſt, or cold and moiſt, at the ſame time.

In hot countries and ſeaſons, unhealthfulneſs depends either, 1. on the particular ſeaſon; ſuch as the wet ſeaſon in moſt tropical countries: or, 2. it depends on the ſudden abrupt changes of the air within the ſpace of a few hours from hot to cold, and from cold to hot again, very common alſo in the above

countries: or, 3. it depends on the ſituation and ſoil of particular ſpots in countries, yielding unſalutary and pernicious quantities of moiſt exhalations, which weaken the elaſticity of the air, perhaps in ſome meaſure alter its properties, and alſo mingle with it in its application to our bodies *: or, 4. it conſiſts in two or more

* The plains by the ſea coaſts and margin of great rivers, in countries and iſlands approaching to or lying within the tropics, are generally the ſpots, which the benefit of trade has directed Europeans to pitch upon for their ſettlements: theſe of conſequence become the theatre of campaigns, when war is carried thither. Theſe extended plains, however apparently dry they may ſeem at ſome ſeaſons, are always comparatively moiſt and unwholeſome; not only by reaſon of the rain which does not drain off them, as in countries that are healthy and abound in diverſities of elevations; but the ſoil being generally light, ſandy, ſpongy, and fat, the waters of the ſeas and rivers, with

more of theſe circumſtances combined.——The firſt is the cauſe of what are called *epidemic* diſeaſes: the third conſtitutes *endemics*, or diſeaſes confined to particular regions or tracts of country.

The primary and direct effect of hot ſeaſons upon perſons not accuſtomed to them is, to open the pores of the ſkin, and to exhale encreaſed quantities of animal fluids by ſweat

with which they are almoſt level, are attracted under ground, thro' them, to a great extent; where, by the heat of the ſun, they ferment with the ſoil before they are exhaled. This ſtate of the air encreaſes the relaxation, that a conſtant profuſe perſpiration imperceptibly produces in habits not tempered to ſuch regions. It is not merely the encreaſe of cold that renders the evenings ſo remarkably dangerous in theſe countries, but the encreaſe of exhalations that become more condenſed by the cold, and ſtagnant in the lower atmoſphere.

and

and perſpiration: this of itſelf does no hurt, if people are careful not to cool themſelves indiſcreetly, eſpecially when their ſtomachs are full, or when they go to ſleep. 'till the fire is out

The firſt *remote* conſequential effect of a continued uncommon degree of perſpiration is retarded, and leſs frequent alvine excretions. Every perſon of ſelf obſervation muſt have remarked, that pretty urgent calls to that diſcharge are immediately ſuſpended by any exerciſe or accident that puts them into a profuſe ſweat: the internal circulation, and the functions that depend thereon, are preſerved ſteady and regular, by the due re-action of the ſkin, returning the the circulation, and as it were concentrating it inwardly again. When this

this action of the ſkin is relaxed and its tone in a great meaſure loſt, by long very profuſe perſpiration or ſweat, the re-acting balance of the circulation is weakened in proportion, and of courſe the internal functions become more languid by the want of that repreſſure that ought to ſupport their vigor.

When this exceſſive waſte of our fluids by the ſkin is continued, or renewed day after day without remiſſion, the circulation, and conſequently that mucous ſecretion that lubricates and facilitates the progreſſive deſcent of the indigeſtible parts of our food, becomes habitually impaired and more ſluggiſh; of conſequence digeſtion becomes more weak and imperfect; and laſtly, from the

major

major part of theſe retarded venous fluids of the inteſtines paſſing thro' the liver, and there giving off the bilious ſecretion, in its way to the heart, the ſecretion of the bile becomes, 1. retarded; 2. it becomes accumulated in the liver; 3. it becomes vitiated or altered in its qualities by its retardation; 4. it is diſcharged or rather expelled irregularly and ſpaſmodically, by the exceſſive efforts of the overcharged veſſels to unload themſelves; 5. the natural periſtaltic motion of the ſtomach and inteſtines being weakened, the irritation of uncommon quantities of vitiated bile throws them into ſpaſmodic, and often inverted action §.

§ Almoſt all the blood of the inteſtines and of the parts contained in the belly, in its return from them to the heart, paſſes through the liver, and there the bile is ſeparated from, or rather

Hence we perceive a natural foundation is laid for generating one or other of theſe diſeaſes of the bowels or liver (according to the particular biaſſes of different conſtitutions, or other accidental circumſtances) which are ſo prevalent in hot ſeaſons and climates; ſuch as, the dry belly ach,

rather concocted and digeſted out of, that returning blood. Hence it is that the liver and inteſtines affect each other immediately. If the liver is obſtructed, the bile becomes vitiated and unfit for promoting digeſtion: and in ſome caſes of its obſtruction dropſies of the belly are produced. On the other hand, if the functions of the inteſtines are diſordered, and the blood is returned from them too ſlowly, the liver is apt to become overcharged with blood or bile; for the generation of bile encreaſes in proportion to the ſlowneſs of the circulation in the liver.—When the liver is overcharged, and cannot freely paſs the blood ſent to it, it is very apt to regurgitate upon the inteſtines, eſpecially the loweſt ones, and there to produce piles, hemorrhoids, dyſenteries, bloody fluxes, &c.

choleras, bilous vomitings, dyſenteries, acidities in the firſt paſſages, obſtructions of the liver, jaundice, &c.

2. The ſecond remote conſequential effect of continued uncommon degrees of perſpiration is, that the re-acting tone of the ſkin, that is, the reſiſting elaſticity of its veſſels, becomes inſenſibly weaker, and more unable to exert ſuch a re-action upon the cutaneous fluids, as is neceſſary to return them with wonted energy, and thereby to preſerve the vigor of the internal circulation; inſomuch that, if even the exceſſive heats were to abate, yet the ſkin, after being relaxed to a certain degree, could not recover its tone for ſome time.

The conſequence of this is, the natural conſtitutional heat of the body

body becomes impaired (for that always varies in proportion to the vigor of the circulation); the circulation becomes languid; and, in proportion as that decays, the blood requires a greater diſpoſition to an internal fermentative, or, what is commonly called, a *putrid*, motion.

When the habit is reduced to this ſtate, which it often is, without any poſitive ſenſe or ſymptom of a formed diſeaſe, or any felt uneaſineſs, beſides a want of wonted vigor, the firſt accidental expoſure to cold or moiſture, or the firſt fatigue, will produce a fever; or rather a chillneſs, coldneſs, and liſtleſſneſs, with pain in the bones or joints, or in the head, and great thirſt; while the remaining powers of the conſtitution raiſe a

fever, by their efforts to repel theſe ſymptoms.

Two things are obſervable in the genius of all ſuch fevers: 1. They are never ſo high and ſo violent in their ſymptoms, as fevers bred in ſound conſtitutions from accidental cauſes; or if they do ſeem high and violent in their attack, it is only a flaſh in their firſt onſet; for theſe ſymptoms will not bear bleeding; and the fever ſoon ſubſides from the ſeeming ardency of its firſt ſymptoms: 2. The other thing remarkable in the nature of theſe fevers is, that they generally degenerate into remittents or intermittents of various irregular types.

All fevers in their commencement may be referred to a morbid ſtate of the

the ſkin; but an habitual diſeaſed temperament of the ſkin may, with ſtrict propriety, be conſidered as the pathognomonic character of intermittents of every kind. Nothing elſe can account for a fever being either regularly or irregularly recurrent, until that degree of relaxation, inaction, or torpidity in the cutaneous ſyſtem of veſſels, conſtituting the univerſal ſenſible viſcus and periphery of our frame, that gives riſe to an intermittent, is removed, and the ſkin's natural re-action and vigor is reſtored || (which is often done by ſudden, unexpected,

|| This ſentiment reſpecting the primary ſeat and cauſe of intermittents may be deemed new and peculiar; it is what I have long entertained, and am perſuaded that the attention and obſervation others turned to the ſubject, may ſoon make me not ſingular in the opinion.

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unexpected, trifling, and ſeemingly inadequate means). You may vomit and purge, give alteratives, and adminiſter correctors of bile as long as you pleaſe, yet ſtill the intermittent paroxyſms will recur.

The intention of this detail is not to introduce and point out the manner of curing the diſeaſes of hot ſea-

The importance of the ſkin, and the variety of its offices, has never been ſo particularly enquired into, as is perhaps requiſite to the underſtanding of many of the phenomena of the human frame, relative both to health, and to diſeaſes. It is not merely a comprehending organ and a ſeat of ſenſe; a filtre for our fluids, and the ornamental covering and defence of our whole interior compoſition; but it ſeems to me to bear a general relation alſo to the powers and functions of every internal part, to ſymboliſe with the private actions of each particular viſcus, and in ſhort to act in ſome ſort as the regulator of the whole animal ſyſtem.

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ſons and climates, but the rational means of preventing them, and of appriſing the unwary how to avoid and obviate the dangers of ſeaſons to which they are not accuſtomed.

The means of prevention, or of preſerving the health in ſuch caſes, may be comprehended under theſe three heads: 1. Uſing proper means to moderate profuſe perſpiration, and regulate the immediate conſequences of it. 2. Preſerving the tone and vigor of the cutaneous veſſels. 3. Regulating the functions of the firſt paſſages, and of their immediate ſubſidiary, the liver.

1. As to the article of perſpiration when it is exceſſive, it is not by the waſte of fluids that people generally

generally ſuffer, but by their indiſcretion in cooling themſelves, by courting the cool air and breezes, or fanning themſelves. If men have not the opportunity of ſhifting after violent exerciſe, profuſe ſweating, or even after being wetted; inſtead of expoſing themſelves to the air, they ought to button cloſe up, and even wrap themſelves in a great coat or morning gown, in order to exclude the acceſs of the air to any thing that is wet or damp about them. In caſe of being wet, indeed, when they cannot change their linen they ſhould, if poſſible, continue in exerciſe till their cloaths are perfectly dry. But as to ſweating, it is ſufficient that they cover themſelves and their damp linen from the impreſſion of the air; for they will catch

no harm from their ſkins abſorbing again their own moiſture, but rather the contrary; for the abſorption of ſaline moiſture of any kind is far from being ſo hurtful and pernicious, as the abſorption of cold freſh water only. This is well known to ſea-faring people, who rarely catch any harm from being wetted with ſea water.

It is in the laſt degree imprudent for people, when they are hot, to indulge their thirſt with large draughts of cold water, or even of very ſmall liquors. Spirits, however unſeaſonable in general, are in caſes of exceſſive ſweating, fatigue, or being wet, ſo far from being hurtful, that a large dram of them is the moſt ſeaſonable cordial; at once relieving fa-

tigue, quenching thirſt, and reſiſting theimpreſſion of cold moiſture upon the ſkin, by bracing and ſtimulating the veſſels of the ſtomach, &c. for that has the ſame ſalutary re-action upon the ſkin, as the ſkin has upon the internal parts.

If gentlemen, or even common men, have it in their power to ſhift when they are wet, either with ſweat or otherways, they ought always to do it, and in doing it they ought to rub their ſkin with a bruſh, or pretty hard coarſe piece of cloth, till it glows, and then immediately dreſs — Here I muſt take occaſion to obſerve, that cotton is a much more ſuitable cloth than linen, for ſhirts in warm climates: it is not ſo cold upon the ſkin when wet, and it dries ſooner than

than linen; if ſoldiers in the Weſt Indies and other hot climates were obliged to wear coarſe cotton ſhirts, and to have them made both in the neck and in the ſleeves without drawing, it would, I believe, be of advantage both to their health and to their cleanlineſs.

2. For preſerving the vigor and tone of the veſſels of the ſkin, ſo apt to decay ſo remarkably and inſenſibly in hot and moiſt ſeaſons and climates, frequent briſk friction, till the ſkin is put into a glow, is of great uſe, as I have intimated before. Cold bathing, where there is any poſſibility of acceſs to it, ſhould be alſo regularly practiſed—but continuing in the water for pleaſure, for any length of time, ought by all means to be

avoided, as tending to chill too much the natural heat of the ſkin, which is too apt to decay of itſelf in theſe regions—coming out of the water is another opportunity of uſing friction—The colder the water uſed for bathing, ſo much the better—bathing in ſea water, which is I believe acceſſible over all the Weſt Indies, is preferable to freſh water, as the ſalt in the water tends to ſtimulate the finer veſſels of the ſkin—when proper veſſels can be procured to bathe in, freſh water is eaſily made ſalt ‡.

‡ There is a diſeaſe, if a certain antidote againſt all other diſeaſes of hot climates deſerves that name, called the *prickly heat*, very common in the Weſt Indies; I am told that ſoldiers are, with great propriety, forbidden to bathe, when they have that ſymptom of health upon them, leſt they ſhould repell it. I ſcarcely believe that cold bathing would repell

Theſe articles, however neglected and overlooked, on account of their obviouſneſs and ſimplicity, would, I believe, be found to be of immenſe conſequence to the *health of ſoldiers*,

pell it, the paddling too long in the water, till the ſkin is over-cooled, may: therefore it is a prudent precaution to prohibit bathing to perſons with that ſymptom of health upon them. Almoſt all ſpontaneous cutaneous eruptions are critical, and never ought to be repelled but with the greateſt caution: yet I am confident that hundreds in this iſland loſe their lives annually by having critical eruptions, under the fooliſh idea of their being the itch, indiſcreetly repelled. The childiſh idea, I muſt call it, though patroniſed by a very reſpectable character, of the itch being owing to animalculæ, and of ſulphur's being their ſpecific poiſon, has proved the death of multitudes; yet every pretender to phyſic is, I am aſhamed to ſay it, taught to pronounce inſtantaneouſly upon that diſeaſe, by inſpection between the joints of the fingers; not knowing that it is the tendency of every kind of univerſal eruption to affect thoſe parts, eſpecially where the ſkin falls into folds or deep wrinkles.

if attended to regularly, whenever they are practicable—But there is one piece of regimen more uncommon, and indeed unthought of, which, I believe, united with a regular obſervance of the rules above deſcribed, would be found a ſovereign antidote againſt the malignity of noxious hot climates and ſeaſons; that is, occaſionally anointing the body with a little ſweet oil after bathing or friction. Whatever idea we may entertain of this practice among the ancients, and even ſtill among the natives of many countries, as a matter of indelicacy, I am confident it was accounted of great importance among them as a preſervative of health. It is equally calculated for reſiſting the bad influence of *cold*, of *heat*, and of *moiſture* upon the body: beſides checking

checking that perpetual exceſs of perſpiration, which not only waſtes animal fluids, but exhauſts the innate heat of the conſtitution.

I believe our ideas, as to the diſagreableneſs of anointing, are owing to our inexperience of it: but even granting it to be unpleaſant to ſuch as are unaccuſtomed to the practice, yet the conſideration of its being a preſervative of health in climates that have ſo often proved fatal to Britiſh conſtitutions, is ſufficient to remove any objection of that kind, to revive its practice, and enforce its utility.—Simple freſh oil for that purpoſe might be improved both in reſpect of elegance and of ſalubrity, by incorporating with it a ſmaller or greater proportion of ſome fragrant eſſence

eſſence or aromatic balſam.—The certain effect of oil to be determined even *à priori*, in reſtraining exceſs of perſpiration, and thereby the waſte of natural heat; and in reſiſting the bad influence of cold and moiſture upon the ſurface of the body, ought to be ſufficient to enforce the uſe of it experimentally. Though I could adduce many medical facts relative to this ſubject to corroborate my recommendation of reviving the practice of anointing as a prophylactic medicine, this is not the place for it*.

* I muſt inſiſt upon it, and recommend it to the ſerious attention of every one concerned, that reaſon points out anointing as a ſovereign antidote and defence againſt both cold and moiſture, and the deleterious conſequences of a continued too profuſe perſpiration.

3. By a proper attention to and regulation of what relates to the firſt paſſages, not only all the diſeaſes of the bowels, ſuch as choleras, dry gripes, dyſentery, jaundices, might be obviated and prevented; but even that tendency to putridity which ſo remarkably ſtigmatizes the diſeaſes of hot climates—1. The whole of this management, ſo far as relates to medicine, conſiſts in preventing unnatural, which is always diſeaſed, coſtiveneſs: by which means that ſluggiſhneſs of the bowels induced by exceſſive perſpiration is relieved, and the ſtagnated bile, that encreaſes excrementitious putridity, is diſcharged *. For this purpoſe I would

* No perſon is ſecure againſt an attack of ſome of the epidemics of hot climates, who has not a natural digeſtion once every day, beſides a gentle laxative at leaſt once in ſix days.

not recommend laxatives that are intirely cooling; but rather ſuch as at the ſame time gently ſtimulate, quickening the inactivity of the bowels, and keeping up the periſtaltic motion, by a moderate irritation—

2. In reſpect of diet—ripe fruits muſt be very intemperately uſed indeed, before they can become hurtful—It matters not how little animal food is uſed in hot ſeaſons and climates—rice is the moſt natural food in hot climates, and it has many advantages above every other grain. It is as nutritive as any; its dryneſs makes it keep well; it is wholſome; is eaſily dreſſed, and by various dreſſings it can be made as continually palatable as any ſpecies of bread or food. It is a conſtant and principal diſh, not only among the poorer Aſiatics, but

at

at their moſt elegant entertainments ‖.

‖ No other grain that Europeans have acceſs to, has all the qualities of rice, while it has all the nutritive properties of any other grain—it keeps better than any other grain, or, any biſcuit or bread made of them; it requires neither the miln, the ſieve, nor the baker; but can be extemporaneouſly dreſſed by every body. And if men were at any time reduced to that neceſſity, the hardſhip would not be great to eat it dry, while in reſpect of nutriment, an handful of it would go as far and be more eaſily carried about with one upon ſuch a pinch, than twice as much bread. A diſh of it boiled, with a little butter and ſugar added to it, and ſeaſoned with pepper or ginger, makes a very comfortable meal, which bread alone is never accounted, and it is far more wholſome than meat in hot ſeaſons. The many conveniences of this grain ſhould be particularly attended to by them who have the charge of providing for armies. It is not by improvident chance that rice is found to be the native and principal farinaceous production of the light and marſhy ſoil of extenſive plains in warmer countries. It is by a determinate providence that the drieſt grain, which requires the leaſt preparation, is appro-

In all hot countries men ought to be furniſhed with a proper portion of pepper, ginger, or ſome other ſimilar ſeaſoning. It may ſeem prepoſterous to ſuperficial judges to recommend hot ſeaſonings in hot countries; but they are abſolutely requiſite, for the ſame reaſon that I have recommended a glaſs of ſpirits, when people are faint with heat and ſweating †.

priated for the food of ſuch as inhabit climates that require ſuch an antidote and corrector of the heat and moiſture of the air.

† It is very obſervable that hot climates abound in theſe warm aromatic productions that we call hot, but which the inhabitants of theſe countries experience to be cool and refreſhing in their effects, uſed as ſeaſoning to their food; by ſtimulating and reſiſting that internal languor, that the digeſtive power of the ſtomach and inteſtines are ſo apt to contract from exceſſive perſpiration and want of proper re-action of the ſkin upon the internal circulation.

It is alſo remarkable that the acrid productions in our comparatively colder climates, ſuch

as

We who are accuſtomed to long kept liquors, have a prejudiced opinion, that fermenting and newly fermented liquors are unwholſome; but that idea is not juſt. The qualities of what now goes by the denomination of fixed air, generated by fermentation, may convince us of the contrary—as fermenting liquors are great reſiſters of putrefaction, which property is counterbalanced by no bad quality, they may always be eaſily had from ſugars in plenty, in hot countries, where the proceſs of fermentation is ſo quick,

as muſtard, horſe-radiſh, creſſes, ſcurvy graſs, onions, garlic, &c. are generally more volatile in their nature than the ginger, peppers, nutmegs, cloves, &c. of tropical climates. Our volatile ſtimulants being more adapted to promote a defective perſpiration and correct the ſcorbutic effects of it in our fluids.

and

and it is ſafer to drink them, at leaſt in part, than too much water, tho' it was always good *.

Little more is requiſite in the management of ſoldiers, in ſuch climates as theſe obſervations are calculated for, than that they avoid eating and drinking plentifully at one and the ſame time. Exceſs of liquor is doubly unwholſome when it is taken upon a full ſtomach.

* I ſuppoſe that in the Weſt Indies and in all countries where they have long hot ſeaſons, the proceſs of fermentation may be completed in a day or two; and the very great ſalutarineſs of a moderate uſe of new fermented liquors, before their effervescence is quite ceaſed, as highly antiſeptic and reſiſting all tendency to putridity, will not now be queſtioned after the various elaborate inveſtigations that have been made into the properties of fixable airs.

We know what ſucceſs has attended the proper management of ſailors. I am perſuaded, that from the above hints a regimen for preſerving the health of ſoldiers in hot countries may be deduced, that may perhaps prove equally ſucceſsful and beneficial to our armies.

POST-

POSTSCRIPT.

THE bloody flux is one of the diſeaſes that proves moſt fatal to Europeans in hot climates. It does not depend on the moiſture of ſeaſons or climates, though theſe may aggravate its ſymptoms. Its immediate cauſe is the unremittent heat weakening the digeſtive action and the periſtaltic motion of the bowels, in the manner before deſcribed; whence the liver becomes overcharged, and does not admit the blood returning from the inteſtines ſo freely as it ought: it regurgitates upon the inteſtines, and produces choleras, iliac paſſions, dry gripes, inflammations of the bowels, &c.

but

but moſt eſpecially it is apt to recoil upon the rectum or loweſt portion of the inteſtines; which inflaming, brings on a teneſmus, or conſtant preſſing to ſtool, with a diſcharge of nothing but ſlime or mucus and blood from the inflamed gut.

I ſay nothing of the method of curing this diſeaſe, which is now pretty well eſtabliſhed. I have endeavoured to prove, in my eſſay on the autumnal dyſentery †, that it is, and ought to be treated, as a coſtiveneſs; and that nothing can be more repugnant to the cure of it in any of its ſtages, than aſtringents, abſorbents, or even anodynes, further than as theſe laſt are neceſſary to ſoothe and allay the grievous pains and unremitting teneſmus, that never give the

† Firſt publiſhed in the year 1759.

poor patients a minute's eaſe. A diarrhœa, or purging of looſe excrementitious ſtools, may admit of the abovementioned treatment; but I have ſhewn in that eſſay, that a true dyſentery is the very reverſe of a diarrhœa, and cannot be cured but by purging, and vomits acting as purges.

My reaſon for touching upon this ſubject here is to inculcate, that the diſeaſe may be prevented by the ſame means by which it muſt be cured. I am fully perſuaded, that no perſon, while his body is kept regularly open, and his bowels preſerved in their natural action, from end to end; will be ſeized with this diſeaſe. Therefore it is on this and on many other accounts a matter of the greateſt importance with perſons migrating

migrating into hot climates, and becoming reſidents there, to guard againſt coſtiveneſs, and by ſome means or other to keep their conſtitutions always rather leaning towards the other extreme.

I think it not amiſs to ſubjoin to the above hints, for the benefit of the military, a new propoſal in regard to the management of ſea water by diſtillation: though, if what I have to propoſe is found to ſucceed, as I apprehend it will, it is more adapted to the ſervice of the navy, than of landmen, yet it may have its occaſional uſe, in reſpect of them alſo.

Various methods have been tried, and ſome of them, by accounts,

with pretty good ſucceſs, for the ſweetening of ſea water by diſtillation: but I wonder it has not occurred to any to do it by diſcharging the marine acid with one of the ſtronger acids of nitre, or rather vitriol.

When the marine acid is diſcharged from its alkaline baſis by either of the above acids, being very volatile, it will diſpoſe the water it mixes with to riſe in diſtillation with leſs force of fire, and conſequently to carry leſs over the helm with it to give the water any diſagreeable taſte than otherwiſe; while, if any ſuch ſubſtance did riſe in the diſtillation in this manner, the flavour would be quite covered by the agreeable

tartneſs

tartneſs that the marine acid would impart to the water.

But this, though a great advantage, is in my opinion the ſmalleſt one that would be derived from this mode of preparing ſea water for internal uſe. The marine acid is admitted to be one of the moſt powerful antiſcorbutics of any, and to be a great reſiſter of putrefaction; therefore ſuch water, moderately uſed, would be not only wholſome, but medicinal in all caſes where any tendency to diſſolution of the fluids was to be obviated. I do apprehend that the marine acid, being very elaſtic and volatile, would be found more efficacious in this reſpect than fixable air itſelf.

N. B.

N. B. Such water would make both very wholſome and very agreeable punch; or by mixing ſpirits with the water, before diſtillation, it would be made to riſe ſtill more eaſily, and the diſtilled water would be found lightly impregnated with a very ſalutary dulcified marine acid; though indeed the marine acid, perhaps on account of its volatility and weakneſs, combines more imperfectly with ſpirits than the ſtronger acids do.

The reſiduum would contain a Glauber's ſalt or a cubical nitre, which might be purified by the fire; though perhaps the nitre might in part deflagrate with the reſiduous unctuous parts of the ſea water.

I have

I have above intimated the propriety of a glaſs of ſpirits in preference to any cooling draughts, when the ſpirits are exhauſted by great heat or fatigue. I here add upon the article of fatigue, that as upon ſuch occaſions a glaſs of ſpirits or ſome glaſſes of wine are great reſtoratives, and give almoſt immediate refreſhment; ſo on the contrary, indulging freely in eating at ſuch times is very hurtful, when fatigue has rendered the power of digeſtion languid and weak: it renders ſleep troubleſome and unrefreſhing, beſides afterwards oppreſſing the habit with a load of crude ill concocted aliments taken into it —when men are much fatigued, they ſhould only eat a little dry bread with ſome glaſſes of ſuch liquor as they have acceſs to, and then commit

mit themſelves to reſt, as warmly covered as poſſibly they can; for a fatigued perſon runs a double riſk of catching cold by the leaſt expoſure during ſleep, and conſequently of falling a martyr to the predominant epidemic

As the autumnal ſeaſon in our temperate climates, correſponds moſt with the nature of hot climates; what I have ſaid in reſpect of the latter, in the above little tract, may be extended to the autumnal diſeaſes armies are moſt expoſed to in our own regions

FINIS.